

REMARKS

Claims 1, 2, 4, 6-15, 17 and 18 are pending in this application. Claims 3, 5, 16, 19 and 20 are canceled. By this Amendment, claims 1, 2 and 8 are amended to overcome the Patent Office's rejection under 35 U.S.C. §112, second paragraph. In addition, claims 4, 10 and 11 are amended for antecedent basis.

In view of the foregoing amendments and the following remarks, reconsideration of this application is respectfully requested.

I. Objection to the Drawings

The drawings were objected to because they are informal marked up versions of the priority document. Applicants respectfully disagree.

Applicants submitted 4 sheets of formal drawings (Figs. 1-4) in compliance with 37 C.F.R. 1.84 in the Response to Notice to File Missing Parts with Declaration on March 15, 2004. Accordingly, Applicants are not required to resubmit the formal drawings in the U.S. Patent and Trademark Office. For the convenience of the Patent Office, however, an additional copy of the formal Figs. 1-4 filed on March 15, 2004 is attached.

Applicants respectfully request acceptance of the formal drawings in the next communication.

II. Rejection under 35 U.S.C. §112

Claims 1-20 were rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter.

Applicants submit that by amending claims 1, 2 and 8 to specifically include chemical formulas for C.I. Pigment Yellow 180, C.I. Pigment Yellow 185, C.I. Pigment Violet 19 and C.I. Pigment Blue 15, the rejection under 35 U.S.C. §112, second paragraph is overcome.

Thus, reconsideration and withdrawal of this rejection are respectfully requested.

III. Rejections under 35 U.S.C. §102(a) and 35 U.S.C. §102(e)

Claims 1-20 were rejected under 35 U.S.C. §102(a) and under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Pub. No. 2003/01866148 ("Nakamura"). These rejections are respectfully traversed.

The corresponding Japanese priority application (Japanese Patent Application No. 2002-302005) of the present application was filed in the Japanese Patent Office on October 16, 2002. A verified translation of the Japanese priority application is attached to this Amendment. The verified translation of Japanese Patent Application No. 2002-302005 perfects Applicants' claim for foreign priority. See MPEP §201.14(a).

Nakamura has a prior art date under 35 U.S.C. §102(a) of October 2, 2003 and a 35 U.S.C. §102(e) prior art date of October 17, 2002. However, as perfected by the attached verified translation of Japanese Patent Application No. 2002-302005, the present claims are entitled to the October 16, 2002 filing date of the Japanese priority application. As October 16, 2002 is before the 35 U.S.C. §102(a) (October 2, 2003) and 35 U.S.C. §102(e) (October 17, 2002) prior art dates of Nakamura, Nakamura is not prior art to the present claims.

For the foregoing reasons, Applicants submit that the teachings of Nakamura are not prior art to the present claims. Reconsideration and withdrawal of these rejections under 35 U.S.C. §102(a) and 35 U.S.C. §102(e) are respectfully requested.

IV. Rejection under 35 U.S.C. §103(a)

Claims 1-20 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 4,539,284 ("Barbetta") in view of U.S. Patent No. 5,719,002 ("Ciccarelli"). This rejection is respectfully traversed.

Claim 1 recites a color toner to be fixed on a recording medium with a flash light, comprising a binder resin, an infrared ray absorbent and a coloring agent for mainly developing a yellow color, wherein the coloring agent is a C.I. Pigment Yellow 180 or a C.I.

Pigment Yellow 185. Claim 2 recites a color toner a color toner to be fixed on a recording medium with a flash light, comprising a binder resin, an infrared ray absorbent and a coloring agent for mainly developing a yellow color, wherein the coloring agent is a C.I. Pigment Violet 19. Claim 8 recites a color toner set for forming a multi-color image through fixing on a recording medium with a flash light, which comprises at least a yellow toner, a magenta toner and a cyan toner, wherein each toner comprises a binder resin, an infrared ray absorbent and a coloring agent, and wherein the coloring agent of the yellow toner comprises a C.I. Pigment Yellow 180 or a C.I. Pigment Yellow 185, the coloring agent of the magenta toner comprises a C.I. Pigment Violet 19 and the coloring agent of the cyan toner comprises a C.I. Pigment Blue 15.

Barbetta teaches a flash fusible color toner that includes resin particles, pigment particles and additives to improve heat fusion efficiency of a flash fusible toner. The Patent Office admitted that Barbetta does not teach or suggest use of the specific pigment particles recited in claims 1, 2 and 8, mainly having C.I. Pigment Yellow 180, C.I. Pigment Yellow 185, C.I. Pigment Violet 19 and C.I. Pigment Blue 15.

The Patent Office relied on Ciccarelli as allegedly teaching the claimed coloring agents in similar toner compositions. Applicants disagree. Ciccarelli teaches a set of toners containing a cyan toner, a magenta toner, a yellow toner, a violet toner and a black toner, each toner containing resin and pigment. Nowhere does Ciccarelli teach or suggest a color toner to be fixed on a recording medium with a flash light comprising a binder resin, an infrared ray absorbent and a coloring agent as required by the presently claimed subject matter. The toners in Ciccarelli do not include infrared absorbing agents.

The particular combination of infrared ray absorbents and specific pigment particles in the present claims achieves the unexpected advantage of enhanced color as a result of the specific pigments being able to compensate for the green color caused by the infrared ray

absorbent in the toner. See pages 6-10 of the specification. These unexpected results are shown in the specification, for example as discussed at pages 20-40, as briefly summarized below.

Table 3 summarizes the results of using the specific yellow coloring agents recited in claims 1 and 8 compared to other yellow coloring agents in an image fixing test. Color reproducibility (color value) is evaluated for all seven samples by measuring L^* , a^* and b^* of CIE of the fixed image. $\sqrt{\{(a^*)^2+(b^*)^2\}}$ values, which show color saturation, obtained by using a^* and b^* (indicating color tones) for YT-1 containing Pigment Yellow 180 (YG-1) and YT-2 containing C.I. Pigment Yellow 185 (YG-2) are 78.07 and 71.6, respectively, which is much higher than those of comparative YT-3, YT-4, YT-5, YT 6 and YT-7 using different yellow pigments (see Table 1 on page 21), which are in the range between 50 to 60. See Table 3, page 23 of the specification. This data reveals that the color gamut is wider for toners containing C.I. Pigment Yellow 180 and C.I. Pigment Yellow 185 with infrared ray absorbents. In addition, the value for color difference (ΔE) was measured. The color difference (ΔE) between each yellow toner and the yellow toner of the Reference Example (no infrared ray absorbent) is represented by the following equation:

$$\Delta E = \sqrt{\{(L^*-L^*_{REF})^2+(a^*-a^*_{REF})^2+(b^*-b^*_{REF})^2\}}$$

wherein L^* , a^* and b^* each represents a value of each yellow toner, and L^*_{REF} , a^*_{REF} and b^*_{REF} each represents a value of the yellow toner of the Reference Example. Table 3 shows that YT-1 and YT-2 have much smaller ΔE values (6.7 and 10.4 respectively) than those of comparative YT-3, YT-4, YT-5, YT 6 and YT-7 (23.6, 21.3, 20.3, 20.7 and 19.1, respectively), which indicates that the yellow colors of YT-1 and YT-2 are significantly closer to the color of the reference yellow toner. Stated another way, the yellow toner YT-1 containing C.I. Pigment Yellow 180 and the yellow toner YT-2 containing C.I. Pigment

Yellow 185 are unexpectedly superior in compensating for the green color of the infrared ray absorbent. Thus, the yellow toners with good color reproducibility and wider color reproduction range can be obtained by using C.I. Pigment Yellow 180 and C.I. Pigment Yellow 185.

Similarly, Table 4 shows the results of using the specific magenta coloring agents as recited in claims 2 and 8 compared to other magenta color agents in an image fixing test. $\sqrt{\{(a^*)^2 + (b^*)^2\}}$ values for MT-1 containing C.I. Pigment Violet 19 is 55.9, which is higher than those of comparative MT-2, MT-3, MT-4 and MT-5 (51.3, 43.4, 44.3 and 46.3, respectively). See Table 4, page 24 of the specification. This data reveals that the color gamut is wider for C.I. Pigment Violet 19. In addition, Table 4 indicates that MT-1 has a smaller ΔE value (10.2) than those of comparative MT-2, MT-3, MT-4 and MT-5 (14.5, 22.9, 21.4 and 18.2, respectively), and thus the magenta color of MT-1 is significantly closer to the color of the reference magenta toner. Stated another way, the magenta toner MT-1 containing C.I. Pigment Violet 19 is unexpectedly superior in compensating for the influence of the green color of the infrared ray absorbent. Thus, the magenta toners with good color reproducibility and wider color reproduction range can be obtained by using C.I. Pigment Violet 19.

Tables 6 and 7 show the unexpected results of an image fixing test for color sets of the yellow toners, the magenta toners and the cyan toners as recited in claim 8. The data includes color toner sets of Examples 1 and 2 using the C.I. Pigment Yellow 180, C.I. Pigment Yellow 185, C.I. Pigment Violet 19 and C.I. Pigment Blue 15 coloring agents, Comparative Examples 1 to 5 using other coloring agents and the Reference Example. See Tables 6-7, pages 34-35 of the specification. In addition, Figs. 2A and 2B are chromaticity diagrams showing the results indicated in Tables 6 and 7. A color toner set having color values close to the values of the Reference Example is preferred.

Figs. 2A and 2B show that, of Examples 1-2 and Comparative Examples 1-5, Example 1 gives the widest color reproducibility, and indicates values closest to those of Reference Example. Further, Example 2 in which the yellow toner YT-1 has been replaced by YT-2, also gives wide color reproducibility. Thus, in both Examples 1 and 2, it is seen that the color gamut is widened in the regions of magenta and red.

Further, in Comparative Example 1 to Comparative Example 5, which use other coloring agents, the color gamut shifts to the green color side, resulting in failure to obtain a good magenta or red color. The inability to obtain good magenta color is caused by the green color of the infrared ray absorbent. In general, the red color is most frequently used, so it is fatal when the red color cannot be printed well.

Thus, the color toners of Examples 1 and 2 (using C.I. Pigment Yellow 180, C.I. Pigment Yellow 185, C.I. Pigment Violet 19 and C.I. Pigment Blue 15 coloring agents) have good color reproducibility and provide wide color reproducibility. Further, they come closer to the color reproducibility of the desired color toner.

Because Ciccarelli does not teach or suggest the inclusion of infrared ray absorbents, it cannot be found to have suggested the use of the presently recited pigments in claims 1, 2 and 8 in combination with infrared ray absorbents, or the unexpected results associated therewith. Moreover, Barbetta and Ciccarelli clearly fail to teach or suggest the unexpected advantages associated with the use of infrared absorbents and specific pigments together as in claims 1, 2 and 8. Thus, nothing in either Barbetta or Ciccarelli would have led one of ordinary skill in the art to the claimed toners.

For the foregoing reasons, Applicants respectfully submit that Barbetta and Ciccarelli, alone or in combination, would not have led one of ordinary skill in the art to claims 1-20.

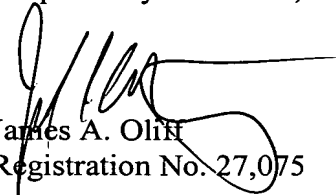
Reconsideration and withdrawal of this rejection are respectfully requested.

VI. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 2, 4, 6-15, 17 and 18 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Joel S. Armstrong
Registration No. 36,430

Andrew M. Chow
Registration No. 51,559

JAO:JSA:AMC/rav

Attachments:

Verified Translation of Japanese Priority Application
Copy of the Formal Figs. 1-4

Date: September 23, 2005

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461
--